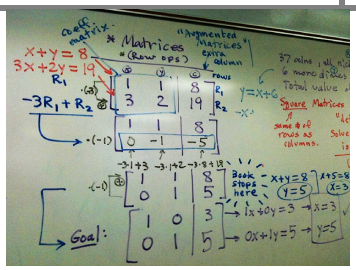

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Ready, Set, Go!

Ready

Topic: Solving systems of equations using matrices.

1. In an earlier assignment you worked the following problem:

   "*A theater wants to take in $2000 for a certain matinee. Children's tickets cost $5 each and adult tickets cost $10 each. If the theater has a maximum of 350 seats, write a system of equations that can be solved to determine the number of both children and adult tickets the theater can sell.*"

   Set up a matrix that goes with the situation described above.

Set

Assume that the matrices below represent linear systems of equations. Practice the strategy you used for reducing a given matrix so that the left portion of the matrix (the 2 rows and first 2 columns of entries) has ones on the diagonal. Write a description of what you did to get from one matrix to another in each step of your sequence of matrices.

2. $\left[\begin{array}{cc|c} 3 & 2 & -6 \\ 1 & 2 & 2 \end{array}\right] R_1 - R_2 \to R_2 \left[\begin{array}{cc|c} 3 & 2 & -6 \\ 2 & 0 & -8 \end{array}\right] R_2 \div 2 \to R_2 \left[\begin{array}{cc|c} 3 & 2 & -6 \\ 1 & 0 & -4 \end{array}\right] \rightarrow$

3. $\left[\begin{array}{cc|c} -3 & 1 & -12 \\ 2 & 3 & -14 \end{array}\right] 3R_1 - R_2 \to R_2 \left[\begin{array}{cc|c} -3 & 1 & -12 \\ -11 & 0 & 22 \end{array}\right] \rightarrow$

4. $\left[\begin{array}{cc|c} 7 & 2 & 24 \\ 8 & 2 & 30 \end{array}\right] \rightarrow$

5. $\left[\begin{array}{cc|c} 5 & 1 & 9 \\ 10 & -7 & -18 \end{array}\right] \rightarrow$

Go

Topic: Solving systems of equations

Solve the following systems of equations with a method of your choice.

6. $\begin{cases} x - y = 11 \\ 2x + y = 19 \end{cases}$

7. $\begin{cases} 8x + y = -16 \\ -3x + y = -5 \end{cases}$

8. $\begin{cases} -4x + 9y = 9 \\ x - 3y = -6 \end{cases}$

9. $\begin{cases} -7x + y = -19 \\ -2x + 3y = -19 \end{cases}$

Need help? Check out these related videos:

http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/solving-linear-systems-by-graphing

http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/solving-linear-systems-by-substitution

http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/solving-systems-of-equations-by-elimination